Enterprise GIS for the Virtual Proving Ground

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Yuma Proving Ground

The Army's Natural Environments Tester!

Virtual Proving Ground

"A distributed, integrated complex of materiel syst
performance and reliability simulation capabilities
that generate valid materiel system effectiveness
information by presenting verified modeled stimuli
to systems operating in synthetic environments
according to realistic procedures and ground truth
information".

http://vpg.dtc.army.mil

Common GIS Problems

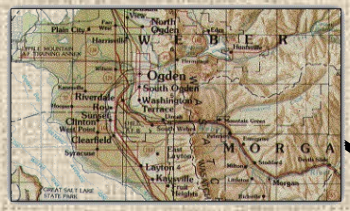
- No master inventory of geospatial data
- Databases are duplicated, even triplicated
  - multiple scales
  - multiple map projections
  - multiple qualities of data
- ESRI vs. Intergraph vs. AutoCAD vs. MapInfo
- Little or no metadata

GIS Problems (Cont.)

- No file and attribute naming standards
- No quality control program
- No installation-wide base map
- High turn over rate of GIS contractors
- Lack of organizational support
- CAD data!

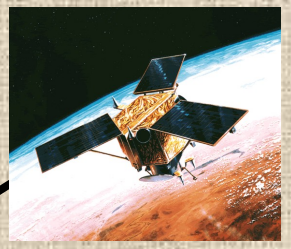
Multiple uncertainty and little of unknown

Geospatial Data



Maps

GIS



Satellite Images

Aerial Photos

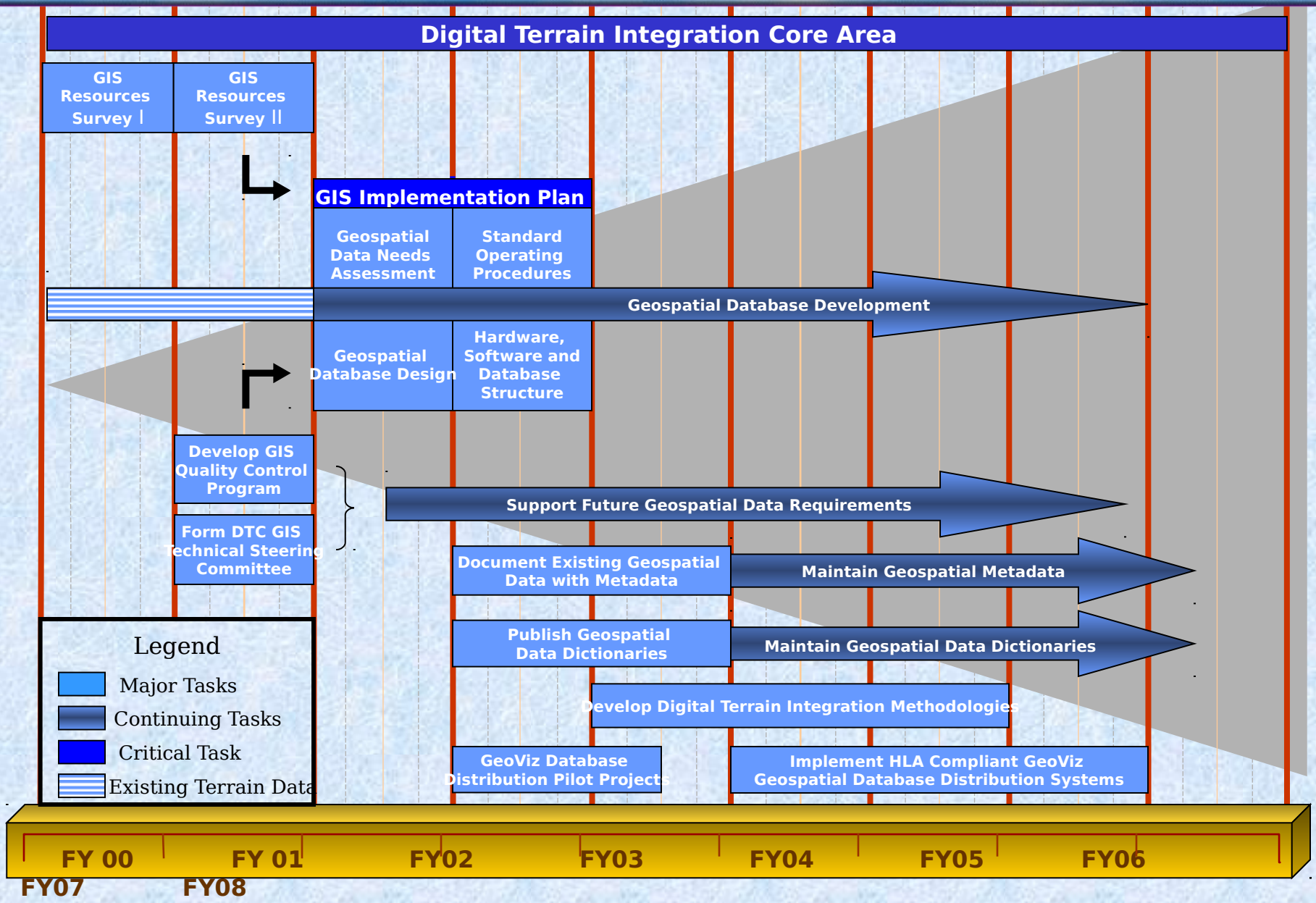
CAD

Databases

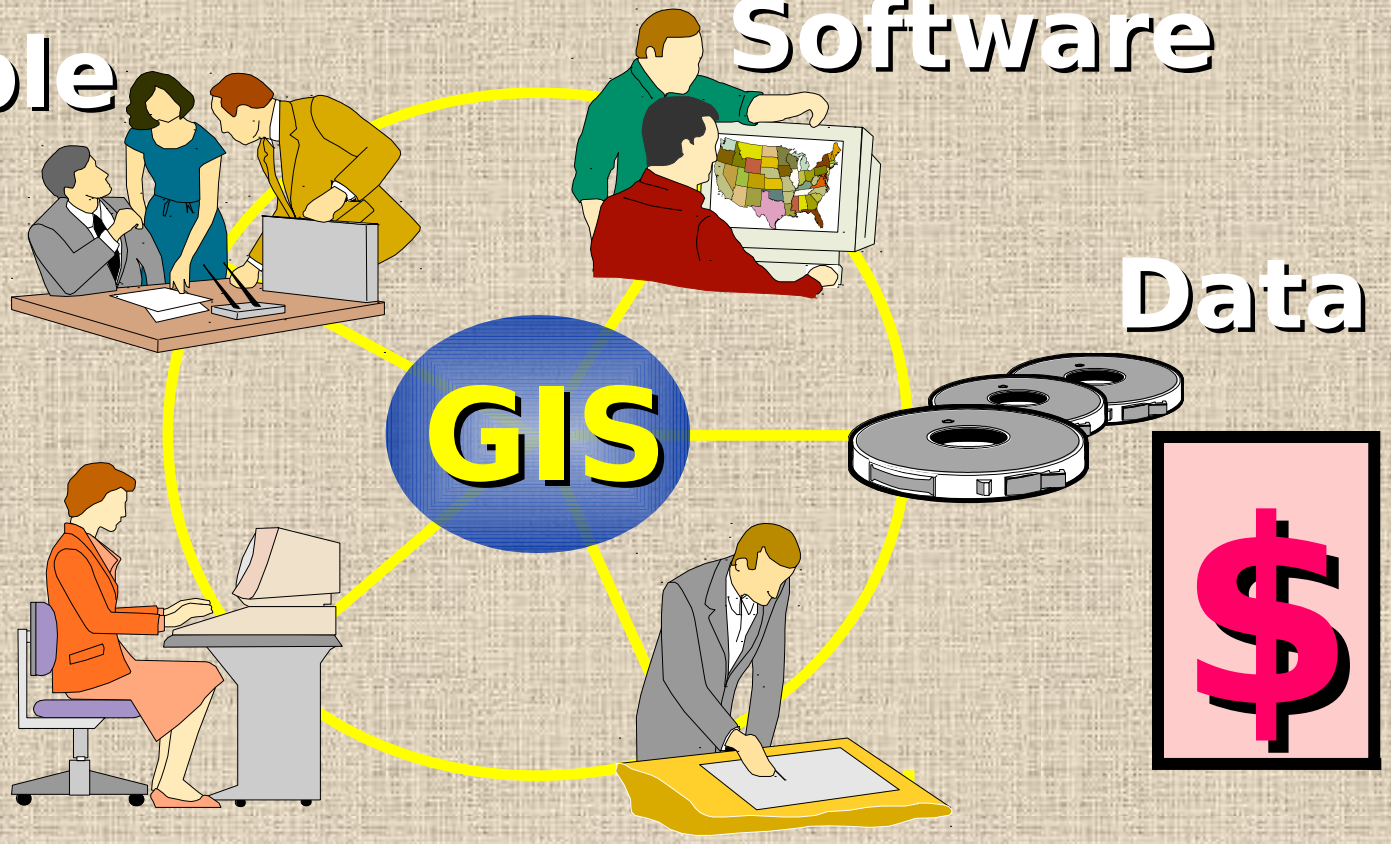
Spreadsheets

GPS

VPG Digital Terrain Roadmap



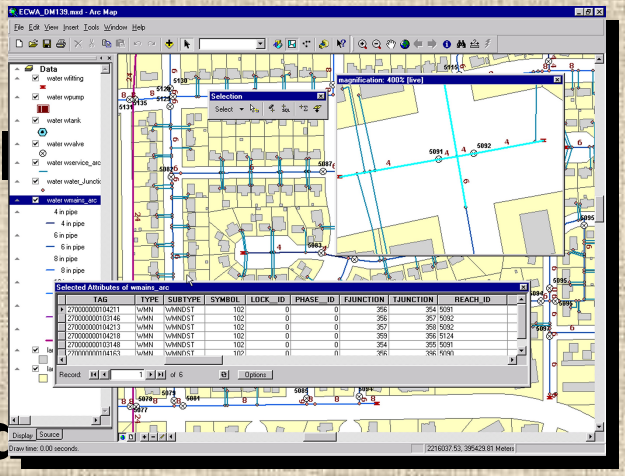
Five Components of GIS

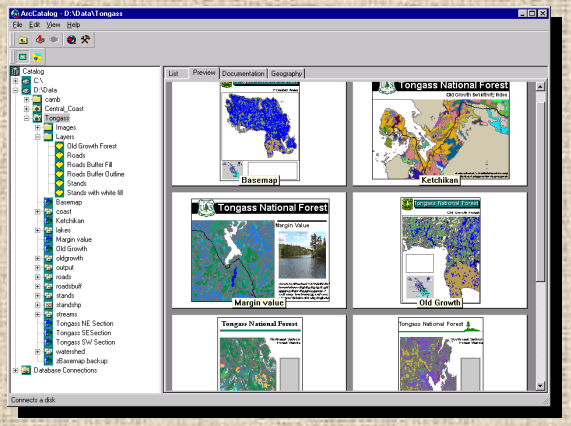


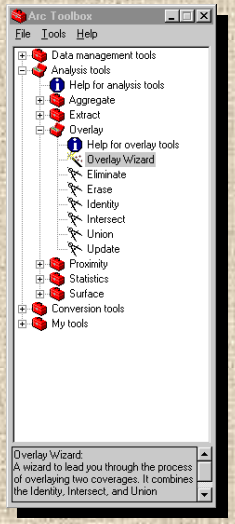
Software Standardization

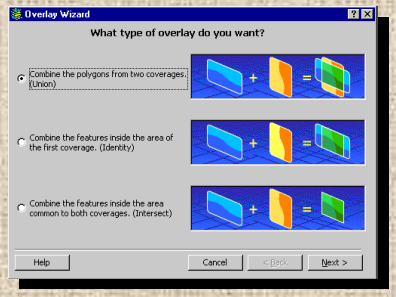
ArcGIS 8.2:

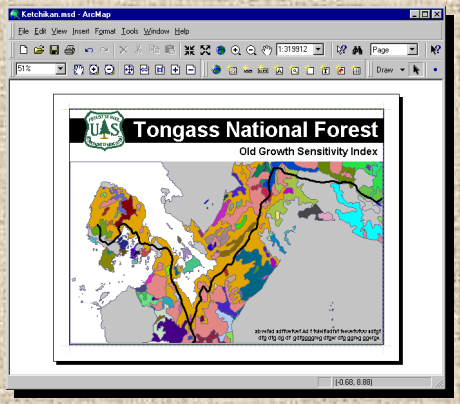
- Applications interface
- Data management tool
- Powerful cartography
- Geoprocessing server
- Geodatabase data mod



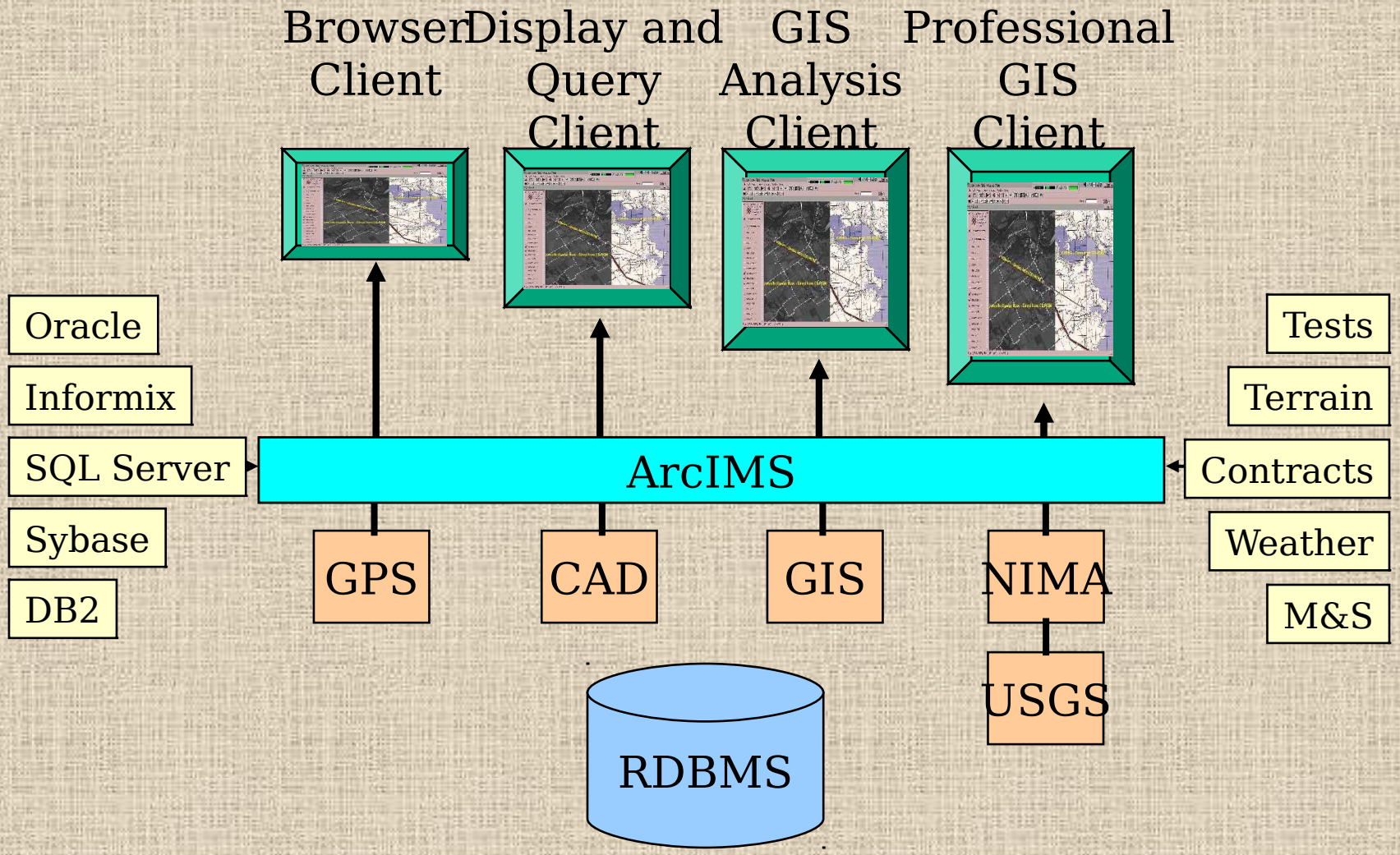








Geodatabase Data Model



Hardware

Pathfinder Pro XRS

Dell PowerEdge 2500

ASD FieldSpec Pro

Chroma TX40 Plus

Scanner-Plotter Server
RIP Software

Epson Stylus Pro 10000

People

- **Staffing**
- **Training**

Virtual Internet-Based Training Programs
On-Site Group GIS Training Courses
Off-Site Individual GIS Training Courses
Certification Programs in Mapping Sciences
Academic University Degrees

GIS Lab Team:
GIS Manager
Database Administrator
GIS Analyst
CAD Operator
Data Entry Technic

Technical Specialty:
GIS and Remote Sensing
Programming
Cartography
Positioning Systems
Specifications

Contractors as nee **Simulation**

People make the difference!

Architecture Benefits

- Scalable
- Secure
- Multiuser System
- RDBMS (query and retrieval)
- Valid Domains and Behavior

- **Empower YPG employees:**
  - Intranet data access
  - Desktop GIS

Technical Changes

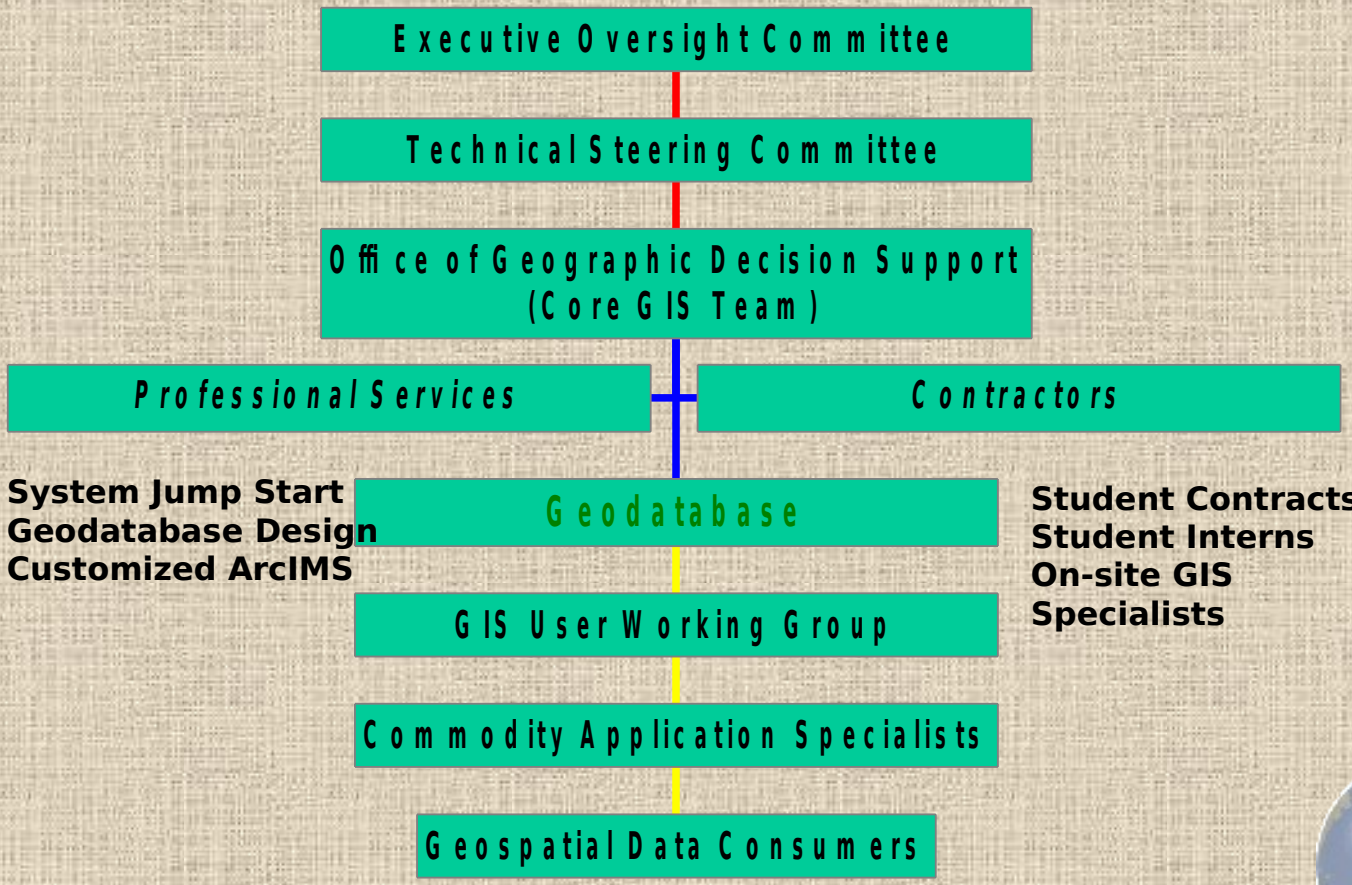
- Consolidate GIS resources in GIS Laboratory
- Centralize databases
- Eliminate redundant databases
- Migrate to Geodatabase data model
- Geospatial metadata generation
- Implement Tri-Services SDS Standards
- Explicit guidance for GIS contracts

Organizational Changes

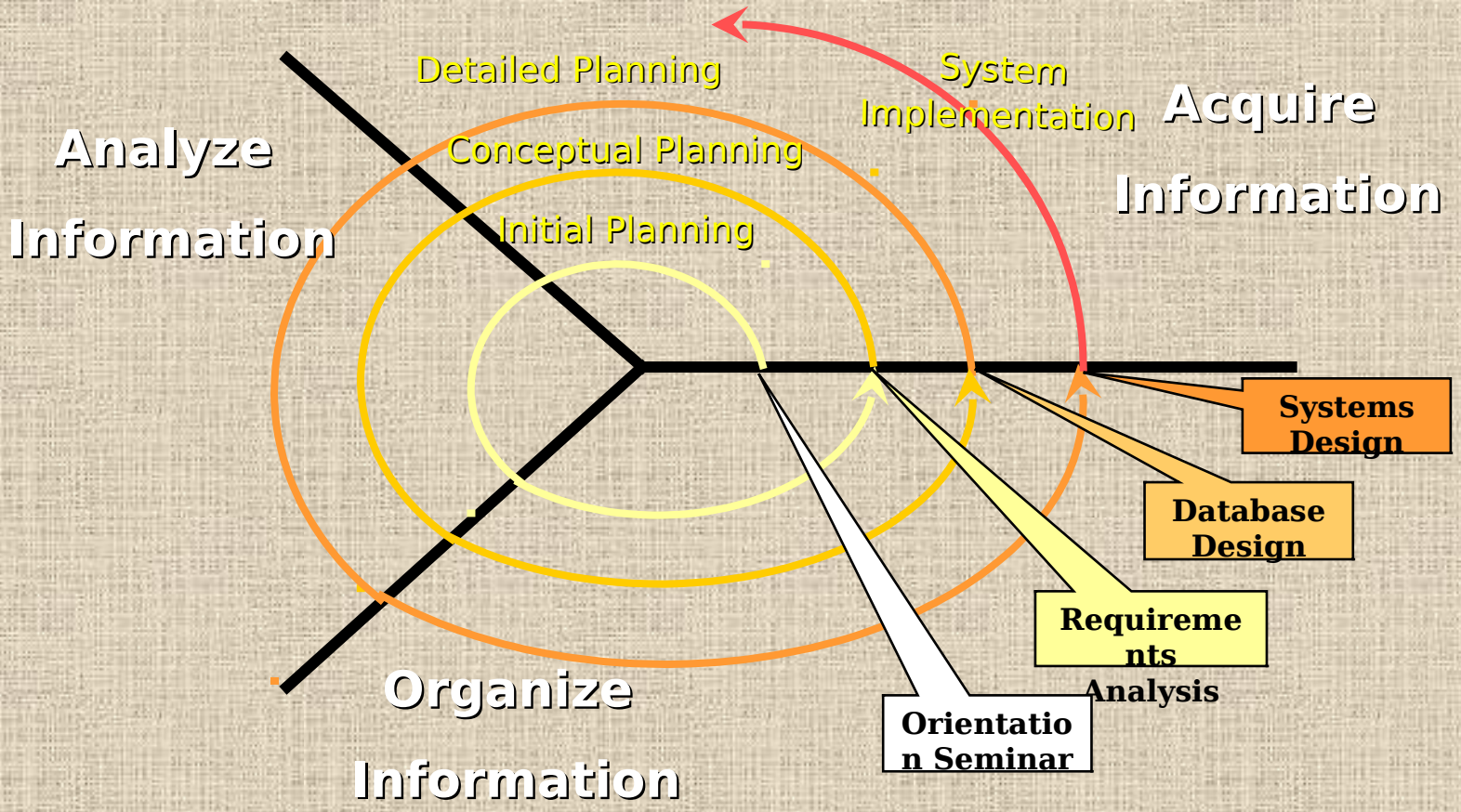
- **Organizational Infrastructure**
  - Executive Oversight Committee
  - Technical Steering Committee
  - GIS User Working Group

- **Office of Geographic Decision Suppor**
  - New dedicated Branch within YTC
  - Sole responsibility and authority for geospatial data
  - Auditing system for GIS customer requests

Organizational Chart



Design Methodology



Suggestions

- Importance of strategic planning cannot be over-emphasized
- Align mission, vision, philosophy with the organization
  - Explicitly define GIS staff positions and responsibilities
  - Understand the nature of geospatial data
  - Develop a comprehensive implementation plan and schedule
- Set realistic expectations and seek obtainable goals
  - Choose GIS applications carefully
  - Produce useful products
  - Obtain and maintain organizational support

Good Luck!